ALFA LAVAL

Industrial Refrigeration

Claes Ericsson
Industrial Equipment

Industrial Equipment

- the segment and its markets

Comfort

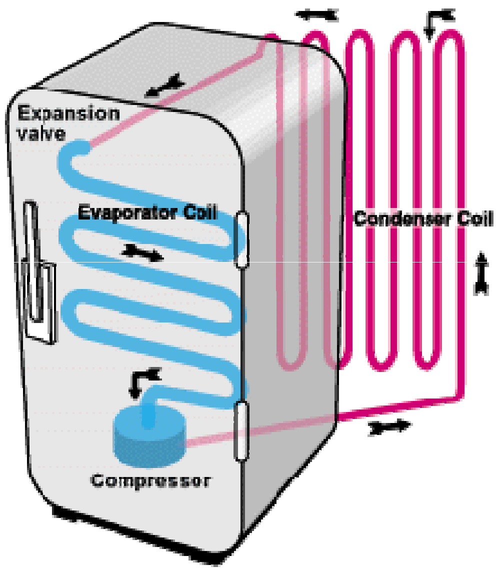
OEM Engine & Transport

Refrigeration

Fluids & Utility

Refrigeration

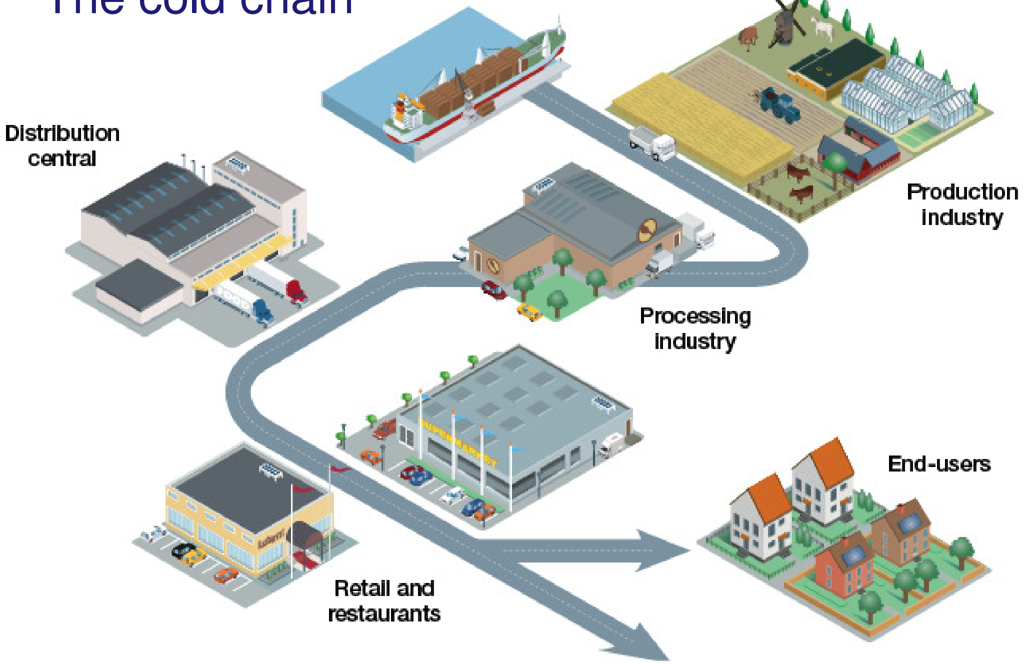
– what is industrial refrigeration?



Industrial refrigeration

– the main end-user markets

The cold chain



Key market drivers
– structural growth drivers trigger change

- Increased living standards
- Urbanization
- Environmental concerns
- Energy efficiency

Key market drivers

– increased living standards & urbanization

Increased living standards

* New consumption patterns in BRIC
* Demand for more prepared food
* Higher quality of food

Urbanization

* Strong urbanization ahead
* Cold chain infrastructure

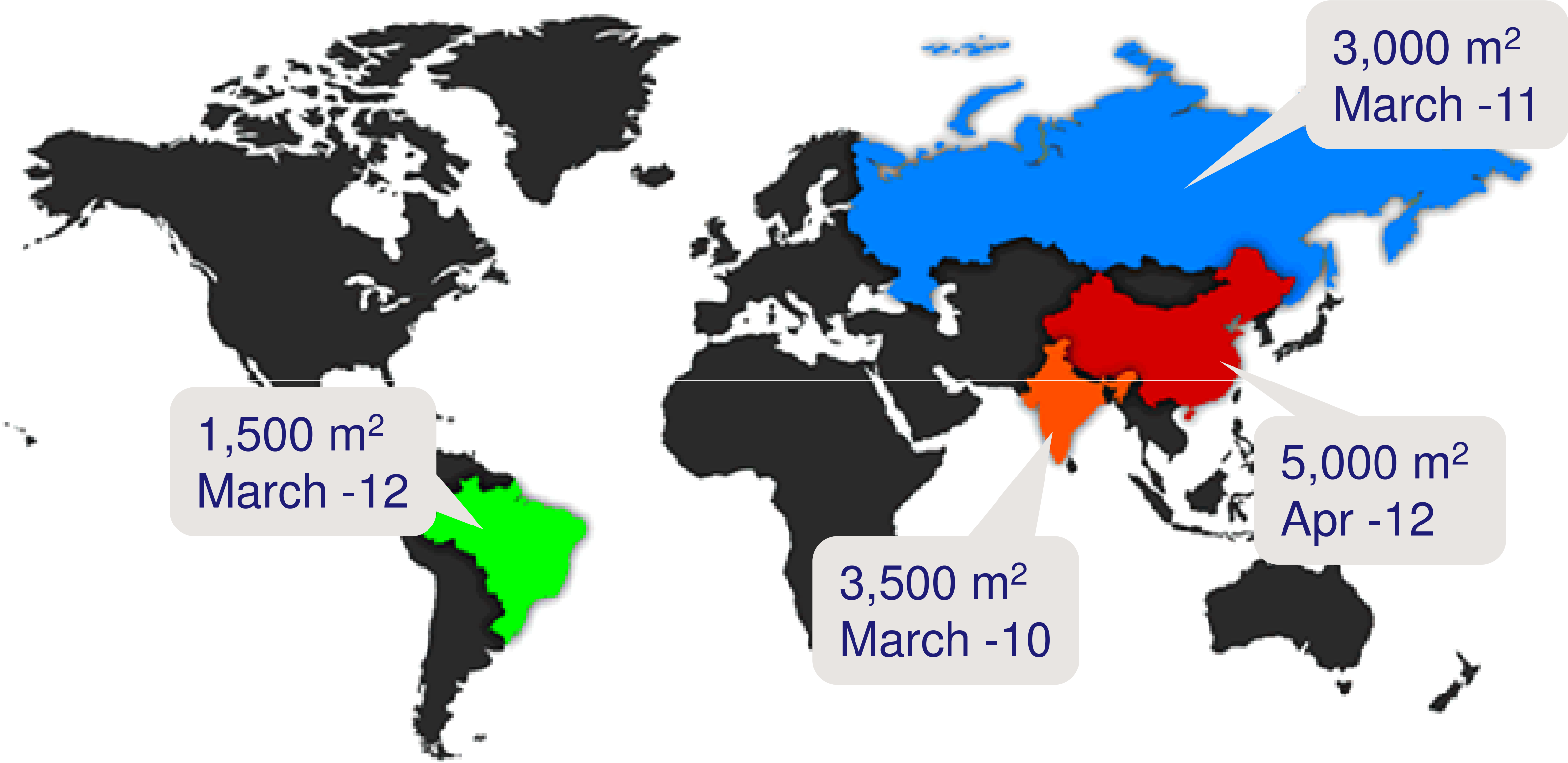
Living standards & urbanization

– examples in fast-growing economies

- Expansion
  - 1000 hyper or larger supermarkets are added in the BRIC countries every year
  - FDI – foreign direct investment – means entrance of global retail players in India
  - New state program for food in Russia
- Modernization of installed base
  - Old systems are inefficient

Stepwise increases

– in footprint for air products in BRIC



Key market drivers
– environmental concerns

* Montreal Protocol
  – Reduction of ozone depleting gases
* Kyoto Protocol
  – Reduction of green house gas emissions


The Japan Times

Conference adopts Kyoto Protocol

Greenhouse gas emissions to be cut by average of 5.2%

KYOTO COP3

Kyoto convention's success open to debate

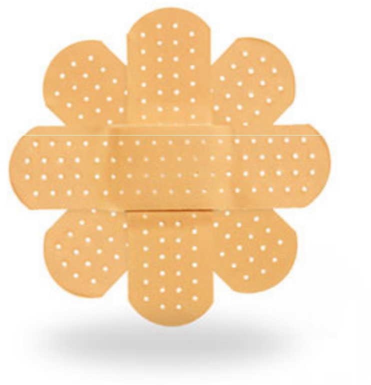
Gist of Kyoto Protocol

Environmental concerns

– drive increased use of natural refrigerants

Environment

Safety

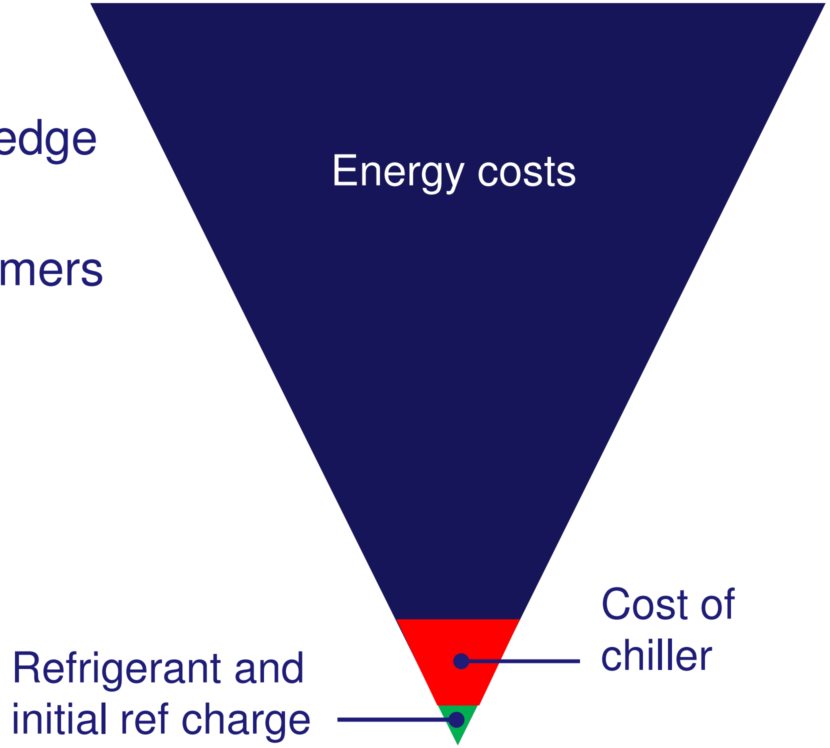


- Ammonia & CO_2
- Aligned with nature
- Technology barriers
- Risk avoidance

Key market driver
– energy efficiency

- Cost of energy and energy usage
- Combining thermal & application knowledge for higher efficiency
- Alfa Laval is the leader in helping customers cut energy costs.

The Optigo case



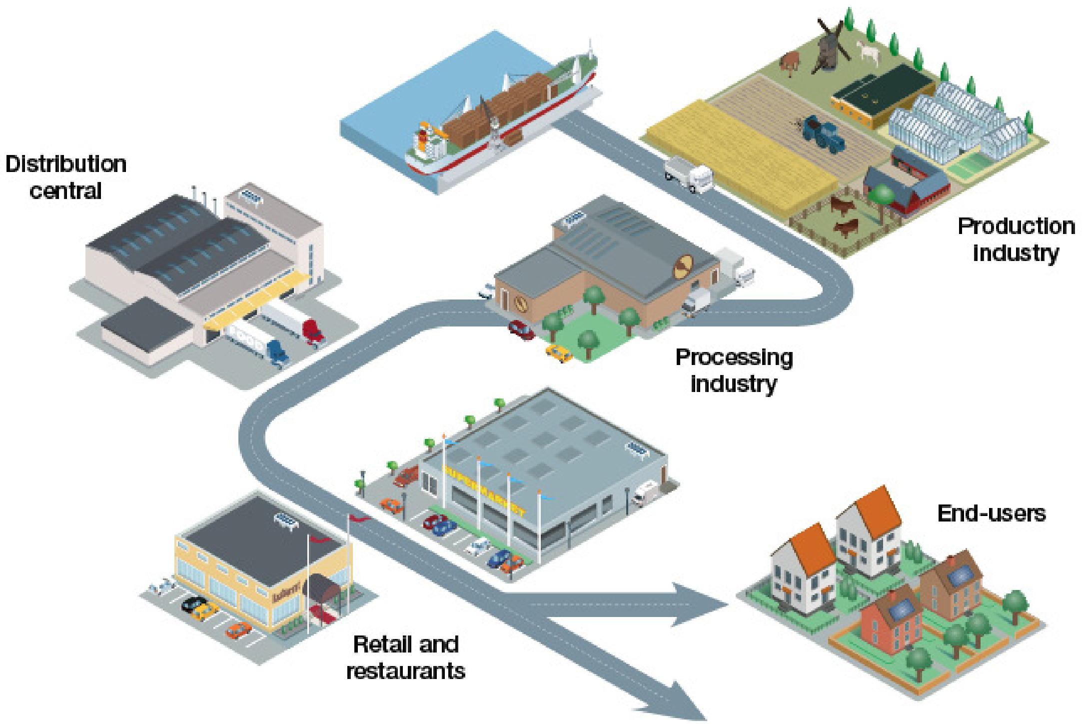
Energy efficiency

– examples in established economies

* Retrofit market
* Energy efficiency and LCC
* Alignment to legislations

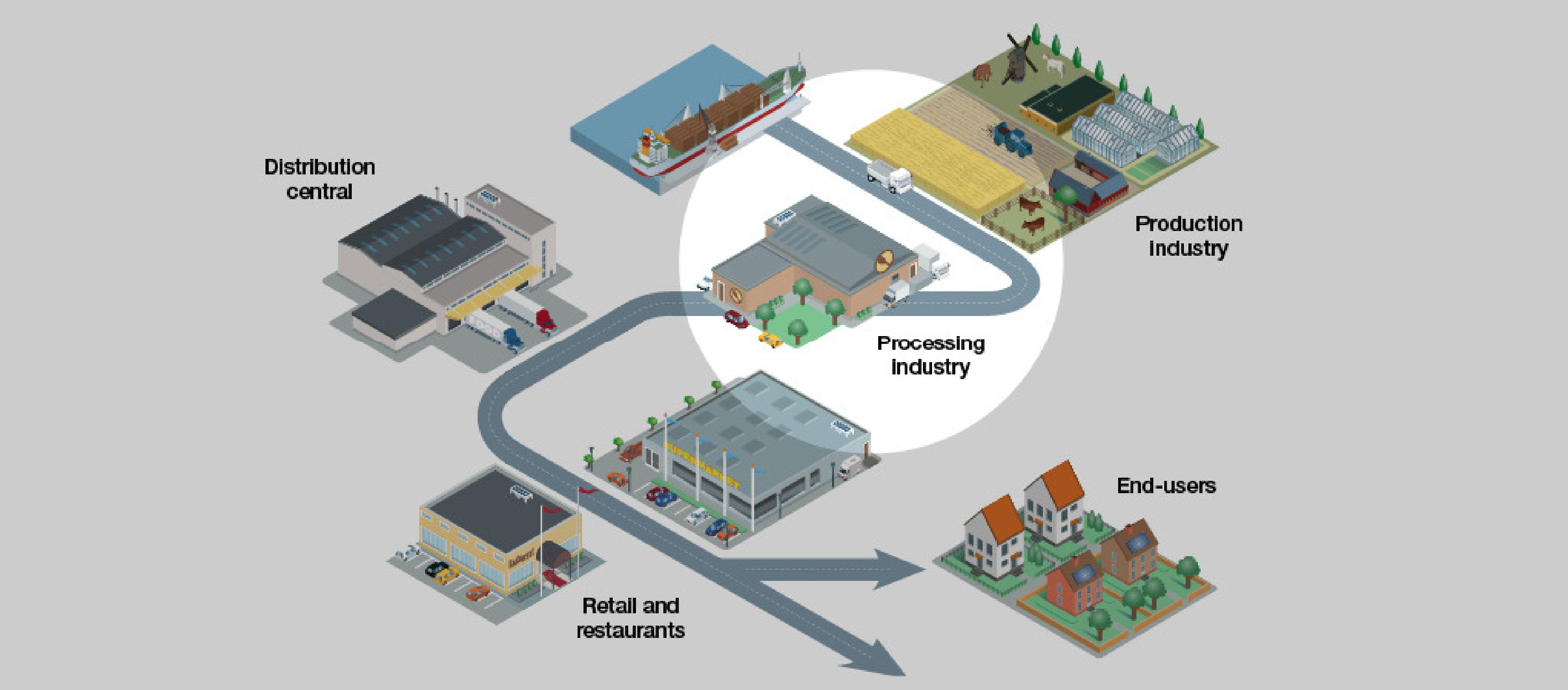
Let’s look at practical examples

– the cold chain

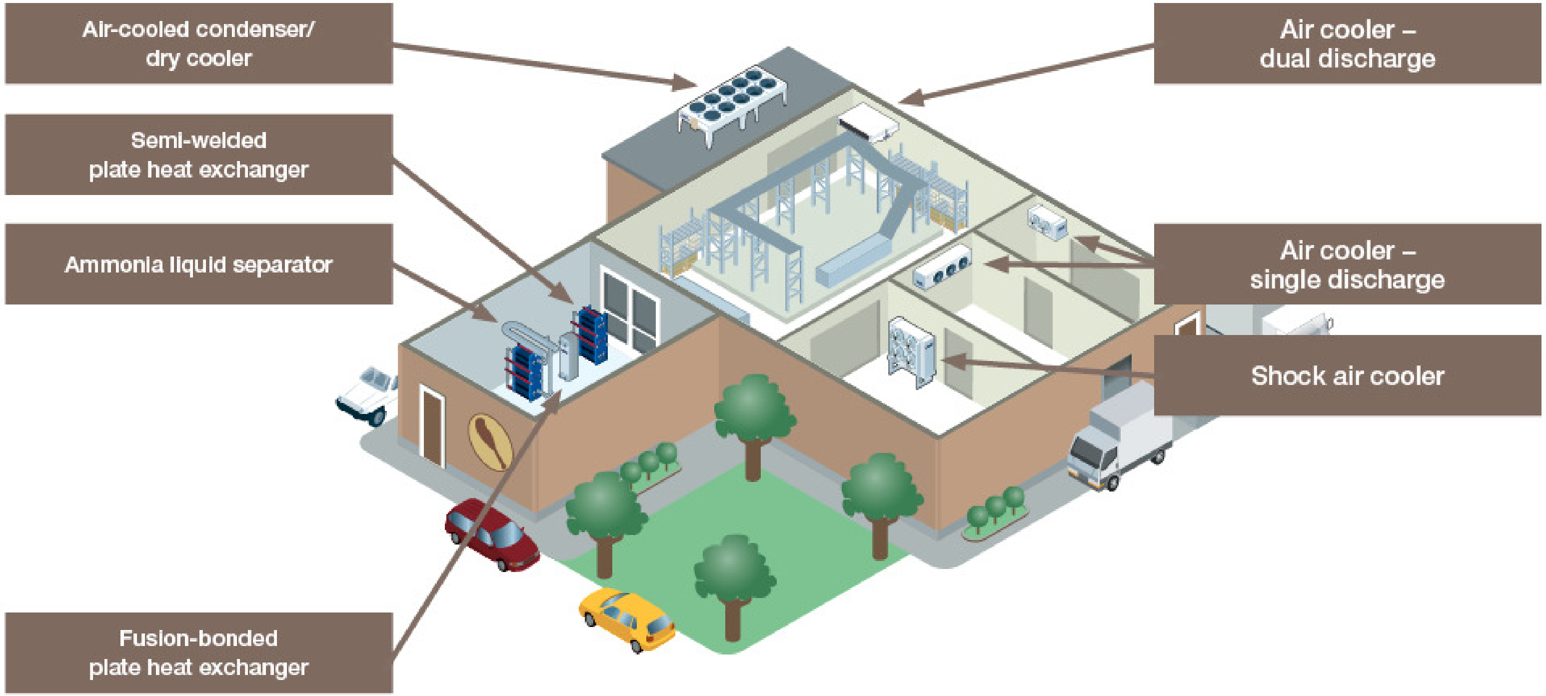


The cold chain

– food and beverage processing industry



Food & Beverage processing industry



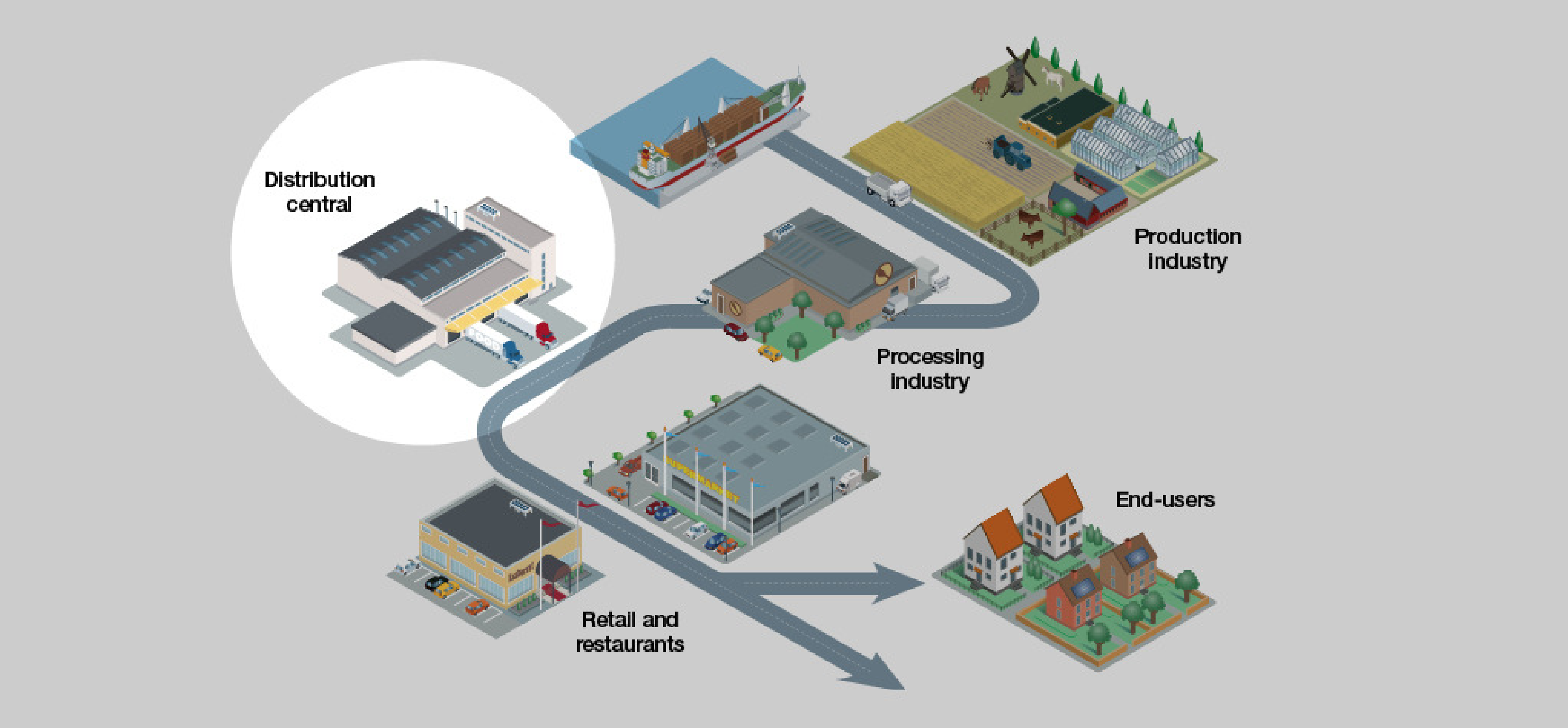
Food & Beverage processing industry

– Beer production in Brazil

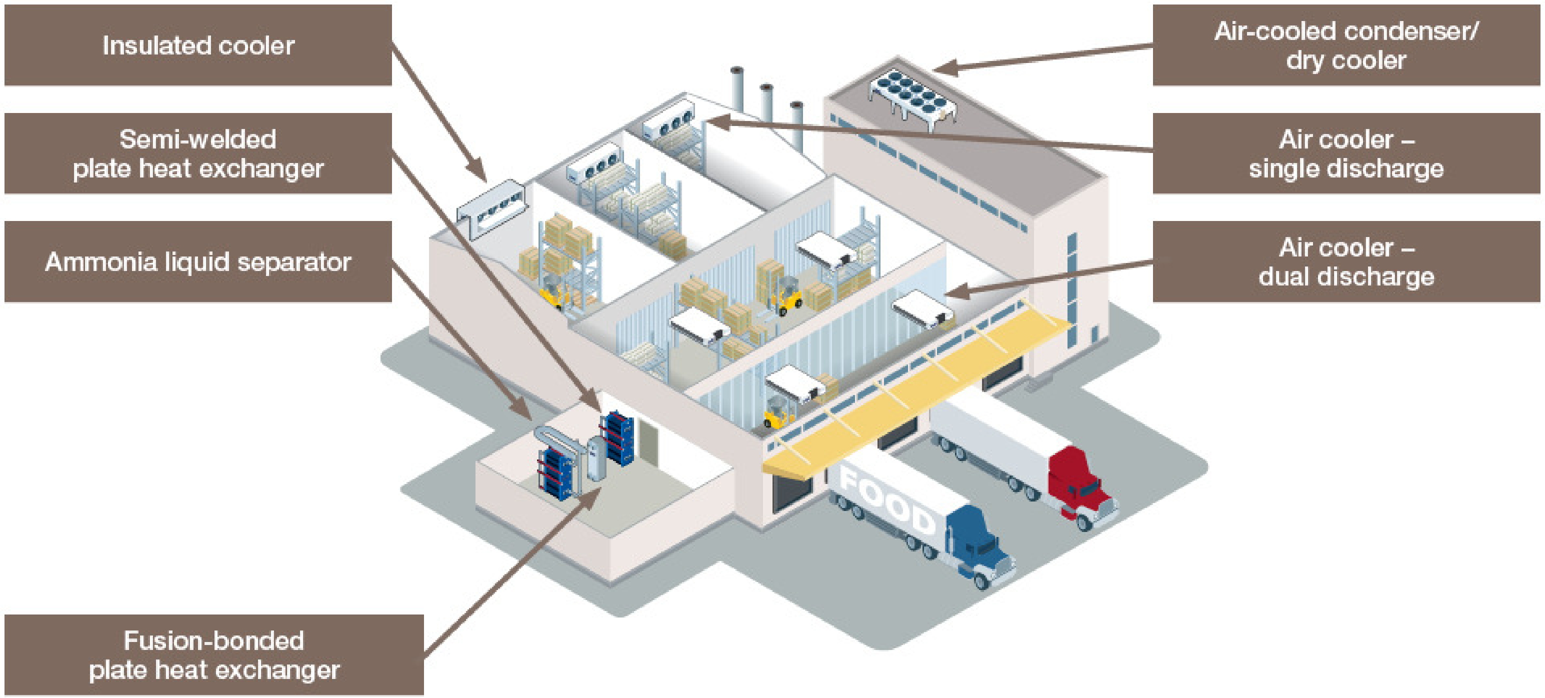
- Ammonia refrigeration system
- Evaporators & condensors
- Utility cooling water
- Order value 1.9 M€

The cold chain

– cold storage and distribution centrals

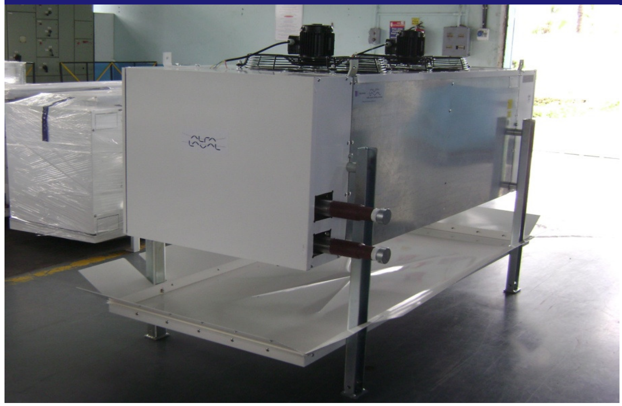


Storage and distribution central



Storage and distribution

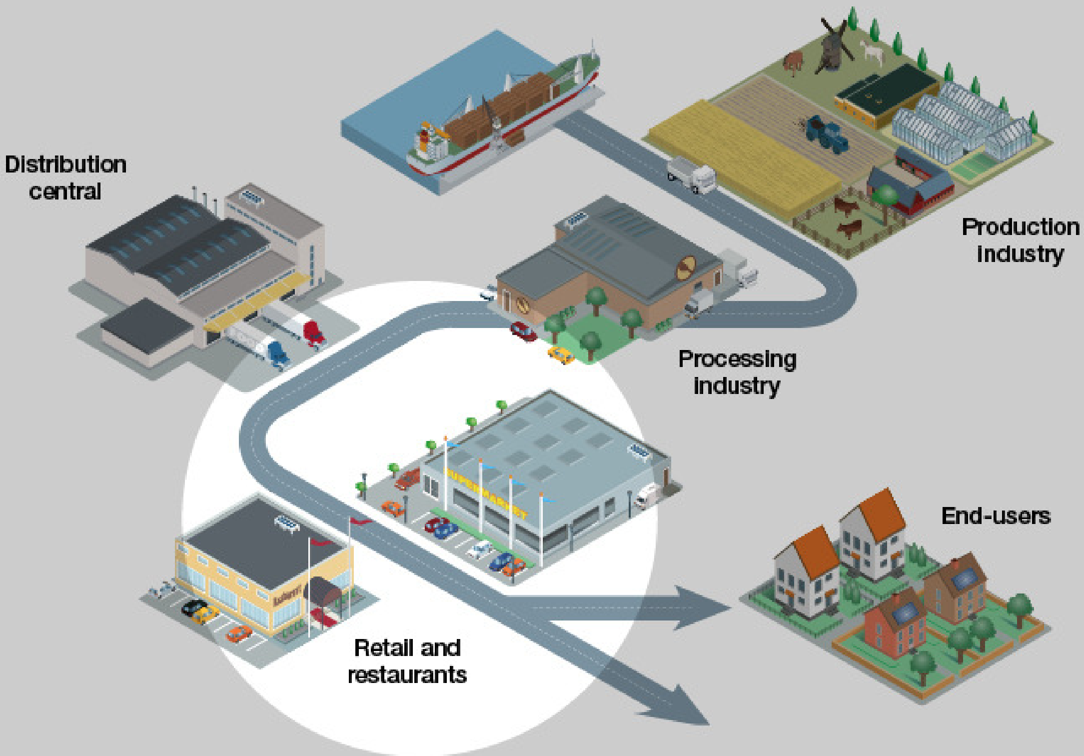
– Chili storage in India



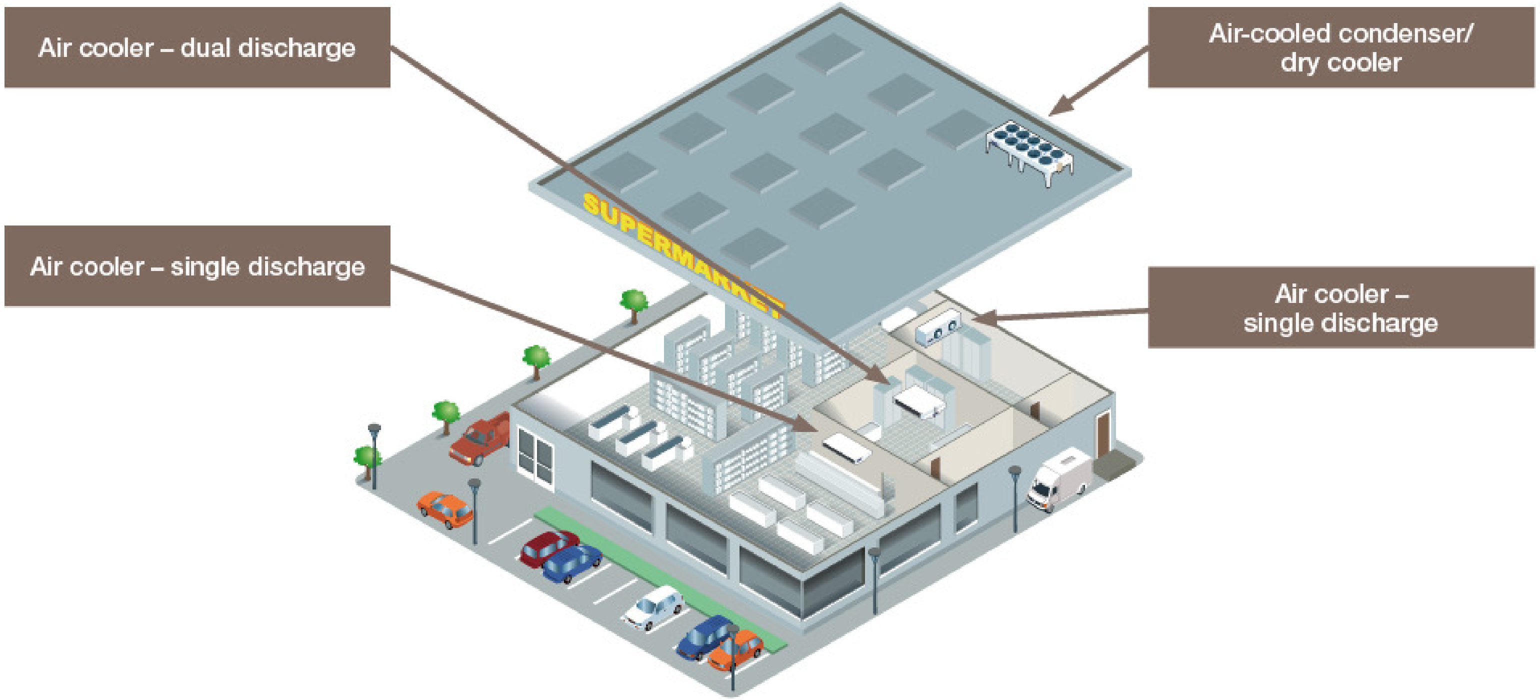
* India is among the world's largest fruit & vegetables producers
* According to Indian government
  – 5,500 cold storage areas in India today
  – This capacity cover 15% of production output
* Cold chain opportunities
  – 25% of food destroyed
  – 20% growth in the cold chain annually

The cold chain

– retail



Retail



Air cooler – dual discharge
Air-cooled condenser/
dry cooler
Air cooler – single discharge
Air cooler –
single discharge
SUPERMARKET

Retail

– CO_2 refrigeration in the UK

- CO2 gas cooling
  - Legislation-driven investment
- An industry on the move
- Industry infrastructure to grow
  - Knowledge among installers
  - Time

Summary

* Structural growth will offer opportunities ahead
* Our improved footprint enables access to a larger market
* As technology leader with a focus on R&D, Alfa Laval will also drive change in a very dynamic market
* A strong brand, wide offering, excellent market coverage and deep application knowledge means potential to capture future growth

ALFA LAVAL